

Categorical Exclusion Determination Project 05Cof24

Requestor/Principle Investigator:

Mark Gatti
Phone: 354-2123
Jet Propulsion Laboratory
California Institute of Technology

Type of Action:

DSN Array Prototype

Purpose and Need:

Arrays of antennas are being explored as a technology that can reproduce the abilities of large antennas but also offer increased flexibility for multi-mission monitoring and decreased maintenance costs. In order to test this technology, a series of three prototype arrays are proposed. These include 1) Engineering Prototype Array, 2) Manufacturing Prototype Array, and 3) Uplink Prototype Array.

Description:

This project proposes to construct and operate a series of small inexpensive antennas on an area of up to 25 acres. The site is envisioned to accommodate up to 25 antennas in sizes from 6 meters up to 18 meters in diameter. These antenna dishes will be mounted on a simple base structure and remotely operated from a central control room. Access will be provided by a simple road with utilities and control cables in the shoulders of the road. A facility infrastructure for the antennas that utilizes computer diagnostics and remote sensing of antenna systems will be constructed. This will minimize the need for heavy maintenance traffic on the access road to the site. Additionally, there will be an under-crossing for water drainage and potential wildlife use under the access road.

The proposed project is bounded on the north by the 391200 North Universal Transverse Mercator (UTM) line, on the south by the 3911000 North UTM, on the east by the 512000 East UTM, and on the west by the 511000 East UTM.


NASA has received concurrence from the U.S. Fish and Wildlife Service in Ventura, CA that the proposed project is not likely to adversely affect the desert tortoise. NASA/JPL will implement the following protective measures to avoid or reduce adverse effects of the proposed project on the desert tortoise:

1. NASA/JPL will maintain a locked gate at the road's southern point or entrance to the project area to prevent vehicle access to the Array site during operation and maintenance except when authorized;
2. NASA/JPL has designed the road with an under crossing to provide for water flow within the wash. It can also be used by wildlife including the desert tortoise to move within the wash rather than crossing the road;

3. NASA/JPL will construct a facility infrastructure for the antennas that utilizes computer diagnostics and remote sensing of antenna systems thus minimizing the need for personnel to access the project site for operation and maintenance of the Array;
4. Vehicle use of the access road during operation and maintenance of the Array will be limited to those infrequent situations when remote operation and maintenance measures are not adequate; and
5. NASA will require all construction, operation, and maintenance personnel to complete an educational program for the desert tortoise habitat, information on the life history and ecology of the desert tortoise, and legal protections.

Determination:

This proposed action has been reviewed against the National Environmental Policy Act, the implementing regulations of the Council of Environmental Quality, and the implementing regulation of NASA. Following my review of the proposed action, I have determined that the proposed action may be categorically excluded from further environmental impact analysis pursuant to 14 CFR 1216.305 (d). My signature on this document constitutes a written record of this decision.

Signed: 
Peter Robles, Jr., Environmental, Safety, Health
and Facility (ESH&F) Manager

Date: 15 Mar 06

Record of Environmental Consideration

1. **Description and location of proposed action:** DSN Array Prototype
2. **Project Administrator:** Mark Gatti
3. **Extension:** 354-2123
4. **Mail Stop:** 303-401
5. **ID Number:** 05CoF24
6. **Anticipated date and duration of proposed action:** March 2006 through March 2017 for construction and operations for up to ten years
7. **It has been determined that the above action:**
 - a. ☒ Qualifies for **Categorical Exclusion** pursuant to 14 CFR 1216.305(d) and the existing NEPA NPG which suggests no need for an Environmental Assessment (EA) or Environmental Impact Statement (EIS).
 - b. ☐ Qualifies for an **Environmental Assessment (EA).**
 - c. ☐ Qualifies for an **Environmental Impact Statement(EIS).**
 - d. ☐ Is **exempt** from NEPA requirements under the provisions of the (cite superseding law): _____

8. Comments

NASA has obtained concurrence from U.S. Fish and Wildlife Service that the proposed project is not likely to adversely affect the desert tortoise.

Signed:


(EAO NEPA Coordinator)

Date:

3-15-06

cc: Elaine Cottle

JET PROPULSION LABORATORY
ENVIRONMENTAL EVALUATION CHECKLIST
(For EAO use only)

EAO PROJECT ID NUMBER: 05CoF24

PROPOSED ACTION: Construct and operate a prototype antenna array at the Goldstone facility.

Instructions: For each of the resources listed on the left, please mark an "X" in one of the columns on the right to indicate the effect from the proposed project on that resource. Explain all positive "+", negative "-", and unknown "u" effects in the "REMARKS" section in the "REMARKS" section at the end of the checklist.

"+" = positive effect
"o" = no effect
"-" = adverse effect
"u" = effect unknown

EARTH	+	O	-	u
Erosion (wind/water)		X ¹		
Surface stability		X		
Agricultural lands		X		
WATER	+	O	-	u
Aquatic life		X		
Flow variation				X
Aquifer yield		X		
Aesthetic properties and potential use of water		X		
Natural streams		X		
Chemical quality (wastewater, stormwater, run-off) (ph, DS, heavy metals, organics, etc.)		X		
Physical quality (wastewater, stormwater, run-off) (ss, oil, temp)		X		
AIR	+	O	-	u
Odors		X		
Toxic substances		X		
Particulates		X		
Air movement		X		
Permitting		X		
Other (SO _x , NO _x , CO, hydrocarbons, photochemical oxidants)		X		

NATURAL RESOURCES	+	O	-	u
Undisturbed natural areas				X ²
Game animals and fish		X		
Threatened and endangered species		X		
Species balance		X		
Migratory Birds		X		
ENERGY RESOURCES	+	O	-	u
Fuel resource, consumption/conservation		X		
Water consumption/conservation		X		
Energy consumption/conservation				X
RADIATION	+	O	-	u
Ionizing radiation		X		
Electromagnetic		X		
Ultraviolet		X		
Lasers		X		
ACTIVITY/SYSTEMS	+	O	-	u
Transportation/supply/demand		X		
Sanitary sewer		X		
Wastewater permitting (EPA categorical)		X		
Storm drainage (NPDES permitting)		X		
LAND USE	+	O	-	u
Flood plain/wetlands		X		
Off-Lab land use		X		
On-Lab land use		X		
Aesthetics			X	
Access to Minerals		X		
SOCIO-ECONOMICS	+	O	-	u
Population		X		
Housing supply/demand		X		
Employment		X		
Commercial activities		X		
Industrial activities		X		
Cultural patterns		X		

Potential Low Income and Minority Populations		X		
CULTURAL RESOURCES	+	O	-	u
Potential Historic Landmarks		X		
Known Historic Landmarks		X		
Potential Archeological Areas		X		
NOISE	+	O	-	u
On-Lab levels		X		
Off-Lab levels		X		
OTHER	+	O	-	u
Historical pits and sumps		X		
Superfund wells		X		
Health & Safety				X ¹
Potential wild fire hazard		X		
Cumulative Effects (impacts to approved future projects)		X ⁴		
Hazardous waste generation		X		
Impact to Superfund Program		X ⁵		

REMARKS

- 1 Erosion control measures will be implemented at the site.
- 2 The majority of the site is disturbed. It is not known, at this time, if some undisturbed areas will be affected, as the extent of the project will be determined based on data obtained from the initial installations. However, the Fish and Wildlife Service has concurred with NASA that the full extent of the project is not likely to adversely affect the desert tortoise. No other endangered plant or animal species have been identified in the proposed project area.
- 3 The Occupational Safety Program Office has been notified of the project.
- 4 The project will not result in an adverse cumulative impact.
- 5 The proposed location of the prototype antenna array is at the Goldstone facility. Goldstone is not a Superfund site.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003



IN REPLY REFER TO:
PAS 2564.3913.4846

January 31, 2006

Peter Robles, Jr.
NASA Management Office
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109-8099

Subject: Construction, Operation, and Maintenance of Antenna Array, Goldstone Deep Space Communications Complex, Ft. Irwin, San Bernardino County, California

Dear Mr. Robles:

We have reviewed your letter, postmarked December 12, and received in our office on December 14, 2005, requesting our concurrence with your determination that the construction, operation, and maintenance of an antenna array at the Apollo Site Area of Goldstone Deep Space Communications Complex is not likely to adversely affect the federally threatened desert tortoise (*Gopherus agassizii*).

The National Aeronautics and Space Administration/Jet Propulsion Laboratory (NASA/JPL) is proposing to construct, operate, and maintain an array of up to 25 small antennas ranging in size from 6.5 feet to 19.5 feet in diameter (Array). NASA/JPL would construct these antennas in two phases; the first phase would be located within a 4.5-acre area at the southwest portion of the antenna site, and the second phase would be a 19.45-acre area (Figure 1). They would mount the antennas on a simple base structure and remotely operate them from a central off-site control room. The proposed project is bounded on the north by the 391200 North Universal Transverse Mercator (UTM) line, on the south by the 3911000 North UTM, on the east by the 512000 East UTM, and on the west by the 511000 East UTM (Figure 2).

NASA/JPL would construct a simple road to provide access to the Array site with utilities and control cables in the shoulders of the road (see Figures 1 and 3, north-south or optional road). This access road extends north from an existing building and road, across a wash, and up the rocky slope to its terminus at the Array site. Vehicles and heavy equipment would use the road frequently during construction but on rare occasions for operation and maintenance of the Array. The total area, which may be disturbed by the proposed project, would not exceed 25 acres.

NASA/JPL will implement the following protective measures to avoid or reduce adverse effects of the proposed project on the desert tortoise:

1. NASA/JPL will maintain a locked gate at the road's southern point or entrance to the project area to prevent vehicle access to the Array site during operation and maintenance except when authorized;
2. NASA/JPL has designed the road with an under crossing to provide for water flow within the wash. It can also be used by wildlife including the desert tortoise to move within the wash rather than crossing the road;
3. NASA/JPL will construct a facility infrastructure for the antennas that utilizes computer diagnostics and remote sensing of antenna systems thus minimizing the need for personnel to access the project site for operation and maintenance of the Array;
4. Vehicle use of the access road during operation and maintenance of the Array will be limited to those infrequent situations when remote operation and maintenance measures are not adequate; and
5. NASA will require all construction, operation, and maintenance personnel to complete an educational program for the desert tortoise including protocols for construction practices in desert tortoise habitat, information on the life history and ecology of the desert tortoise, and legal protections.

The project is located in West Mojave Desert recovery unit (Service 1994a) and is northwest of the Superior-Cronese critical habitat unit for the desert tortoise (Service 1994b). Desert tortoises are known to occur within 0.6 mile of the project site (Lynn et al. 2005). However, the location of the Array and upper portion of the access road is on a large rocky outcrop area with some patches of sand. Slopes range from 0 to 10 percent and soil texture is rocky. The plant community is sparse creosote bush scrub. The lower portion of the road is within an area with several small washes. The soils are sandy and the shrub cover is lower than at the array site.

Biologists from Ft. Irwin surveyed the Array site for desert tortoise and desert tortoise sign in May 2005. They implemented the standard survey protocol (Service 1992) within the survey area, which was larger than the project footprint (Figure 3). No desert tortoise or sign was found. Based on the habitat description of the Array site and the absence of desert tortoise sign, the Array site is not considered suitable habitat for the desert tortoise and is not likely used by the desert tortoise.

The area that includes the lower portion of the road was surveyed in January 2006 following the standard survey protocol. The surveyed area extended 1000 feet beyond the proposed road's location. No desert tortoise or desert tortoise sign was found. This area does not appear to contain suitable habitat for resident desert tortoises.

Peter Robles, Jr.

3

Based on the absence of suitable habitat at the project site, the absence of desert tortoise sign in the project area, and the protective measures that NASA proposes to implement, we concur that the proposed project is not likely to adversely affect the desert tortoise.

No further consultation pursuant to section 7 of the Endangered Species Act of 1973, as amended, is required at this time. If you become aware of new information regarding the design or implementation of the proposed project, or that a listed species has been adversely affected by the project, we recommend that you contact us as soon as possible to assess the need for further consultation.

If you have any questions regarding this project, please contact Judy Hohman of my staff at (805) 644-1766, ext. 304.

Sincerely,

A handwritten signature in black ink, appearing to read 'Carl T. Benz', with a stylized flourish at the end.

Carl T. Benz
Acting Assistant Field Supervisor
Mojave/Great Basin Deserts

Enclosures (3)

Literature Cited

Lynn, N., M. Hessing, B. Shomo, and T. Huxley. 2005. Desert tortoise survey at Apollo site. Report prepared for NASA/JPL by ITS Corporation, National Training Center, and Ft. Irwin. 5 pages.

U.S. Fish and Wildlife Service. 1992. Field survey protocol for any federal and non-federal action that may occur within the range of the desert tortoise. Regions 1, 2, and 6.

U.S. Fish and Wildlife Service. 1994a. Desert tortoise (Mojave population) recovery plan. U.S. Fish and Wildlife Service, Region 1, Portland, Oregon, 73 pages + appendices.

U.S. Fish and Wildlife Service. 1994b. Critical habitat for the federally threatened desert tortoise. 59 *Federal Register* 5820-5866.

October 2005

ACI: Administratively Controlled Information

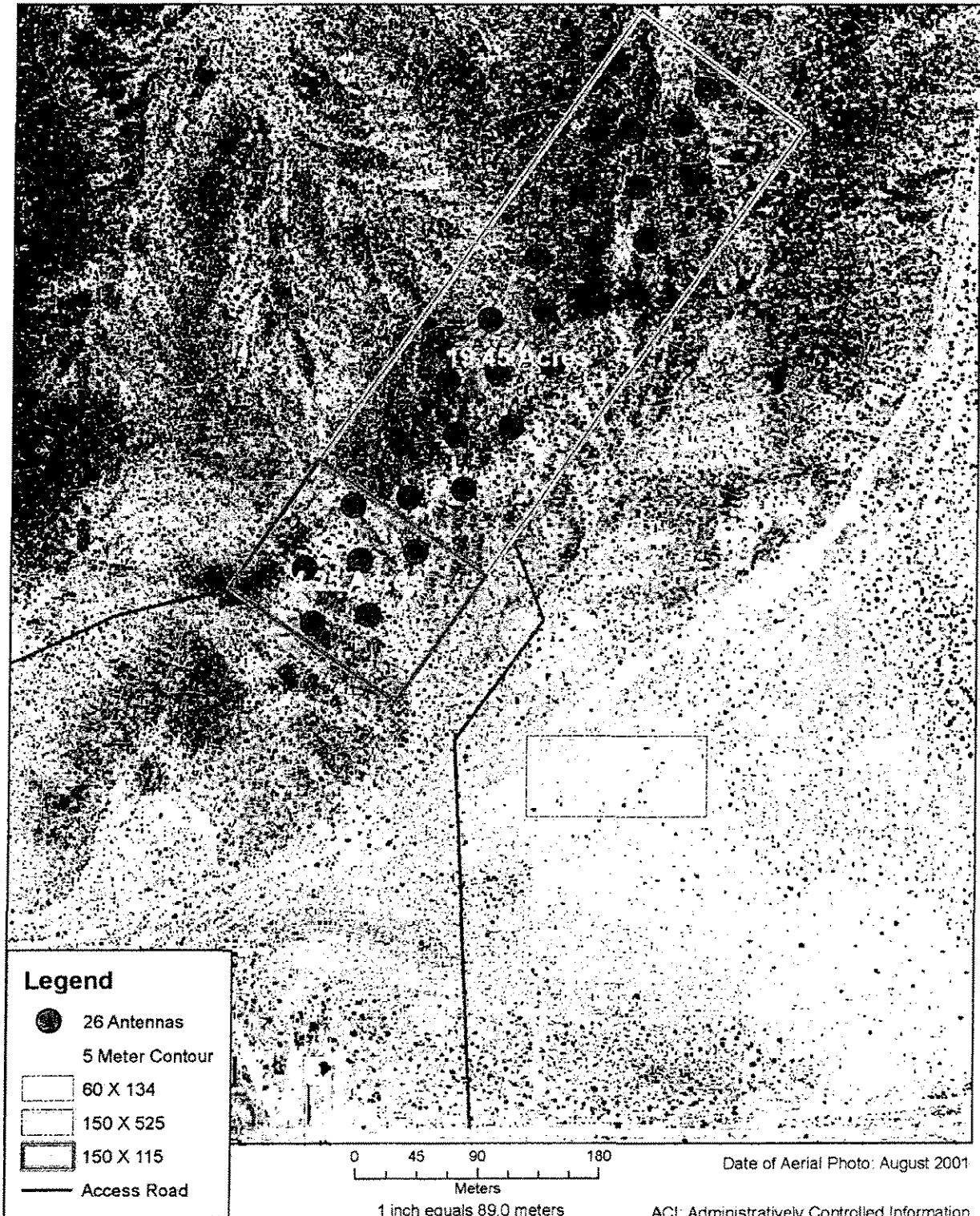




Figure 2. Location of Project Area

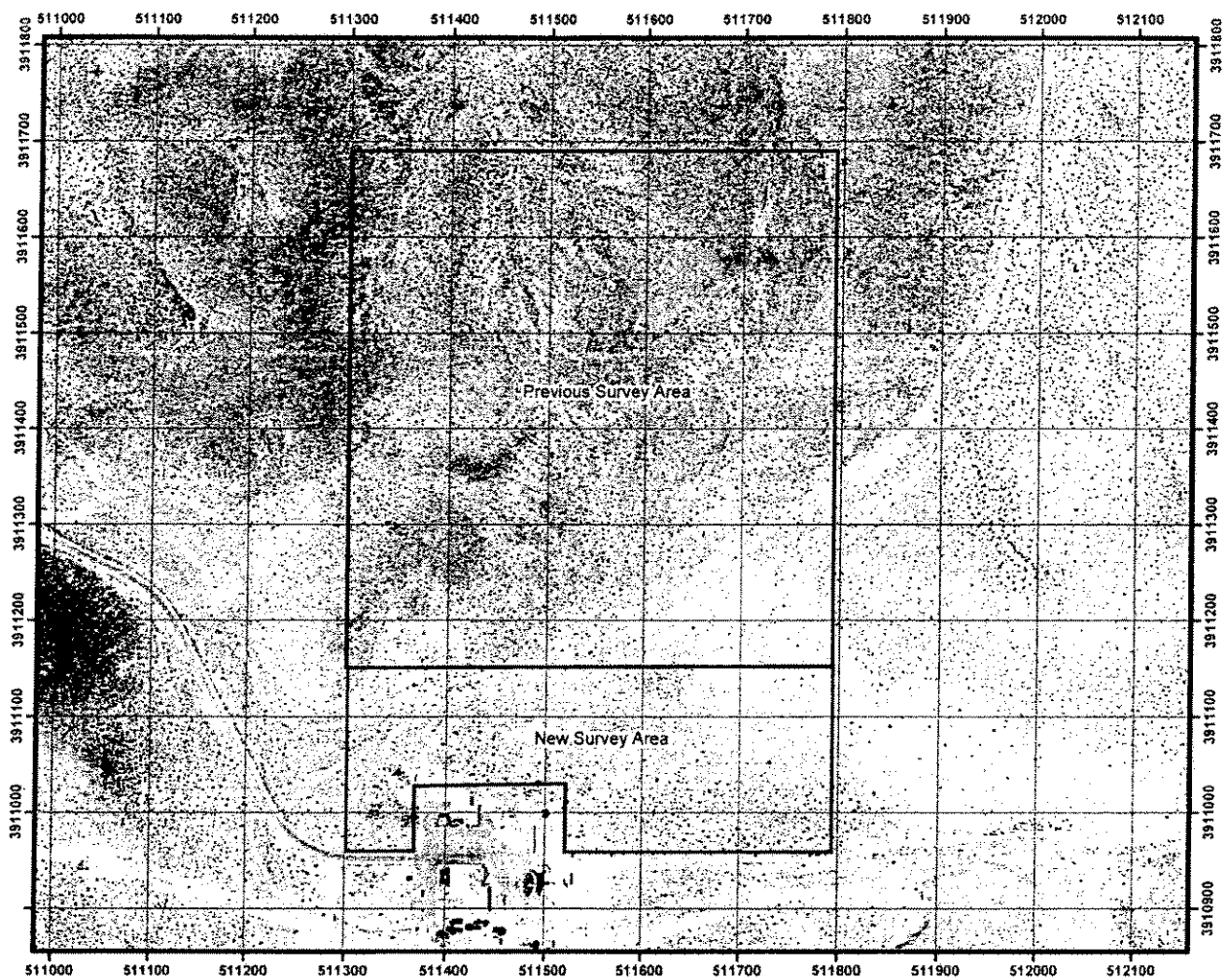


Figure 3. New Survey Area.

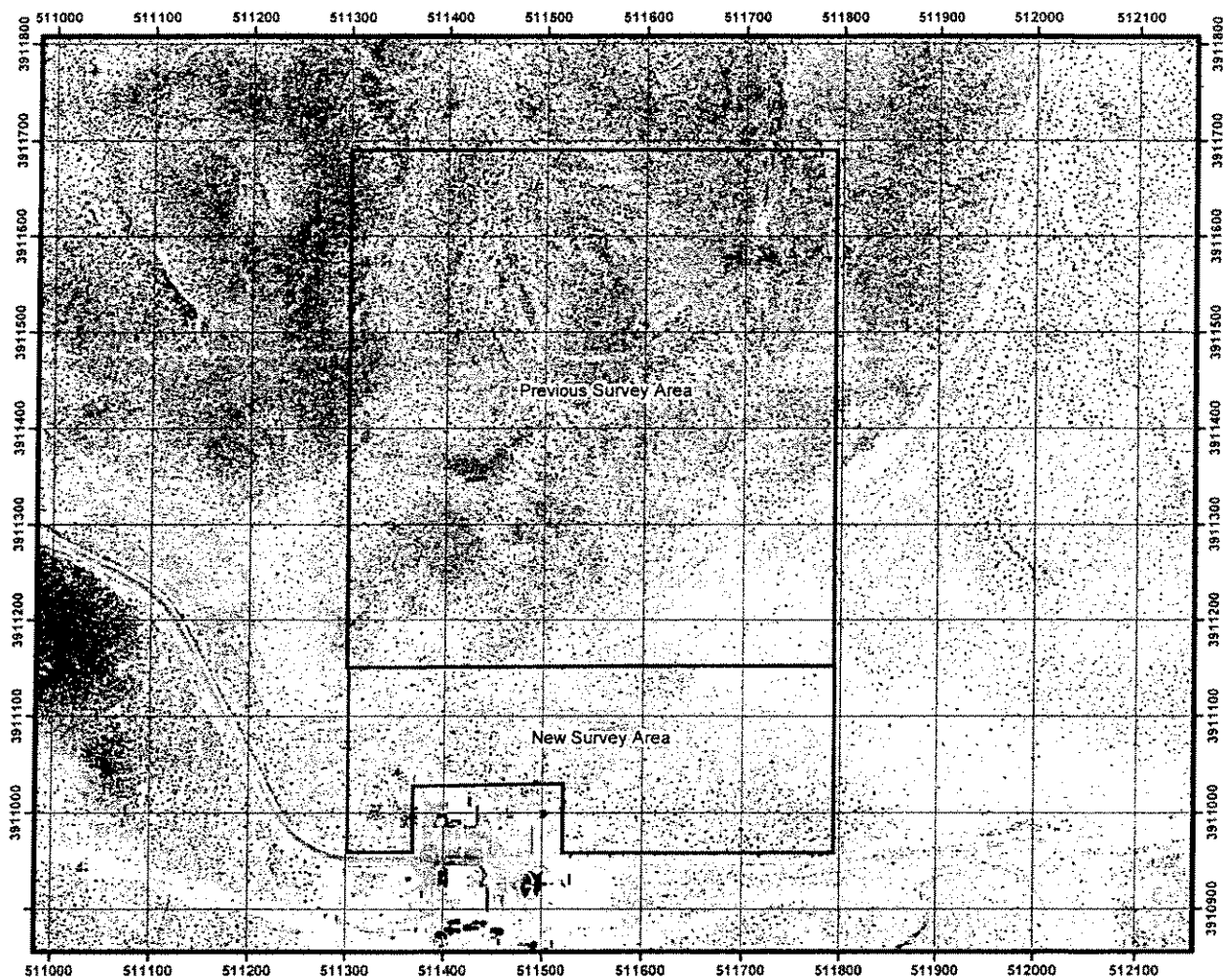


Figure 3. New Survey Area.

National Aeronautics and
Space Administration
Office of Space Science

NASA Management Office

180-801
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109-8099



Reply to Attn of

U.S. Fish and Wildlife Service
Attn: Ms Judy Hohman
2493 Portola Road, Suite B
Ventura, CA 93003

Subject: Prototype of Antenna Array, Goldstone Deep Space Communications Complex
(GDSCC) – APOLLO Site Area

NASA wishes to inform you that a new activity on GDSCC at the APOLLO Site is under consideration. The project may have possible impact to the desert tortoise, which is known to be in the general area. NASA, with the assistance of others, completed a review of the site from a biological perspective. The purpose of this letter is to seek your concurrence with NASA conclusions regarding the site and possible impacts to the desert tortoise.

The project is a new R&D effort for NASA/JPL to develop technology for arraying small, inexpensive antennas. The site is envisioned to accommodate up to 25 antennas in sizes from 6 meters up to 18 meters in diameter. These antenna dishes will be mounted on a simple base structure and remotely operated from a central control room. Access will be provided by a simple road with utilities and control cables in the shoulders of the road. NASA proposes to construct a facility infrastructure for the antennas that utilizes computer diagnostics and remote sensing of antenna systems. This will minimize the need for heavy maintenance traffic on the access road to the site. Additionally, there will be an under crossing for water drainage and potential wildlife use under the access road. The total area which may be disturbed is 25 acres. This R&D site for the new antenna array technology exceeds the existing Programmatic Biological Opinion limit of two (2) acres of undisturbed habitat. The site is depicted in **Attachment I** with the boundary of the R&D site marked appropriately.

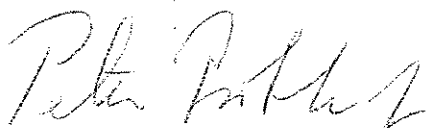
In compliance with the existing PBO Terms and Conditions the proposed site has been surveyed by the appropriate biological specialists from Ft. Irwin on May 25, 2005 (**Attachment II**). As noted in the attached biological survey in the "Survey Area" section, the site soils are generally rocky with some patches of sand. The site is hilly with slopes ranging from 0% to 10%. The plant community is creosote bush scrub with low plant diversity. There were no endangered plant species found in the survey area. No tortoise activity was noted during the Ft. Irwin survey.

The Ft. Irwin biologist's survey concludes that there is no tortoise activity at the subject site. NASA believes that, given the very similar conditions, the site for the access road also has little possibility for tortoise activity. The survey also notes that the area may have a good chance for sighting a tortoise and is suitable for desert tortoise. However, as noted in the abstract of the survey, Ft. Irwin biologists could find no biological reason to prevent the proposed project's construction. Despite this finding, NASA plans to implement the biologist's suggestion of briefing construction and operations personnel on desert tortoise protocols and natural history as an extra precaution.

Based on the Ft. Irwin biologist's survey, and our own evaluation, NASA/JPL has concluded that the proposed project and operations at the APOLLO Site may affect, but is not likely to adversely affect, the desert tortoise. NASA/JPL is seeking your concurrence of this conclusion.

If you have any questions or need additional information, please contact Peter Robles, NASA Environmental, Safety, Health, and Facility Manager, at 818-393-2920, or Mr. Charles, Manager of JPL's Environmental Affairs Program Office at 818-354-0180.

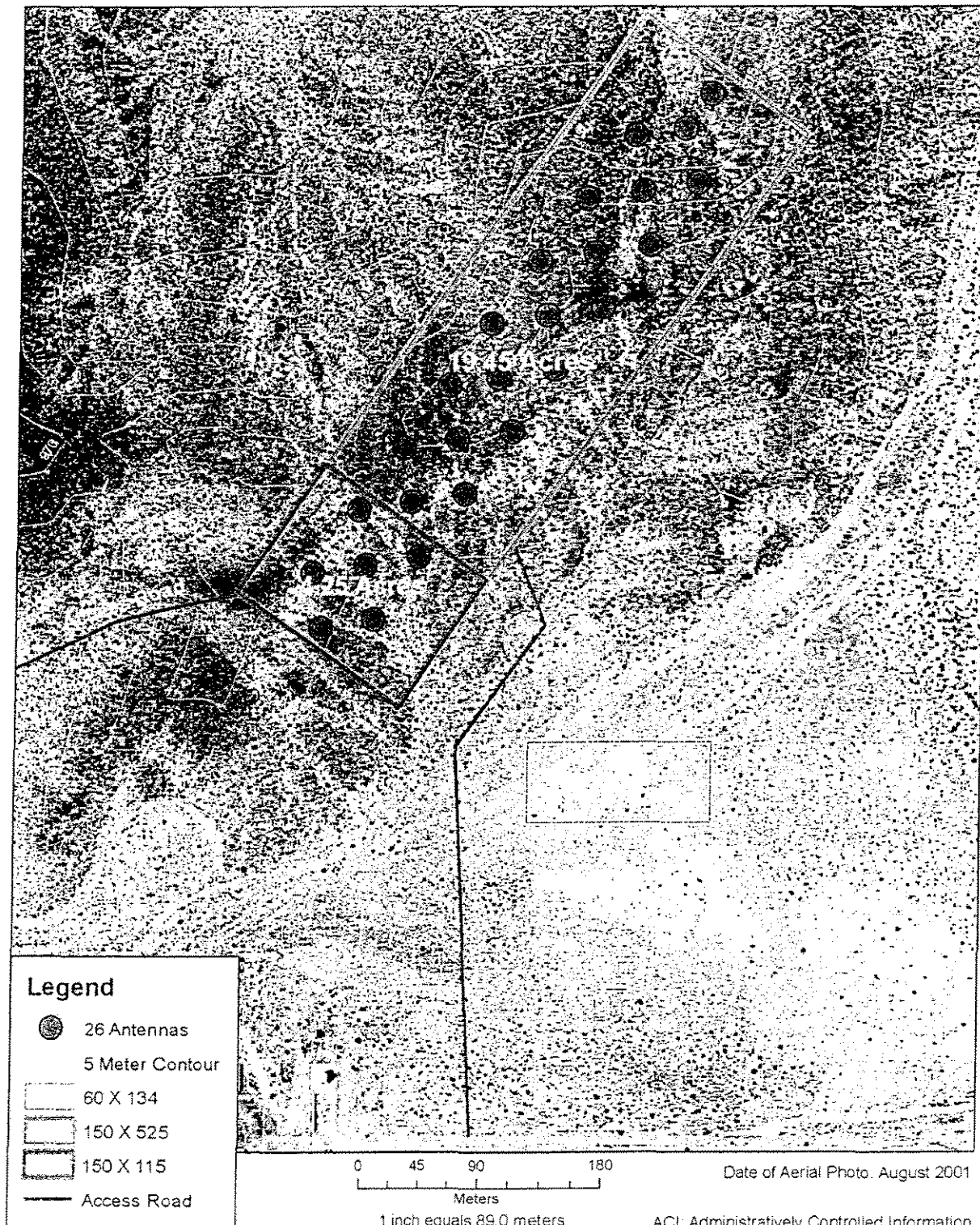
Thank you for your time and consideration of this request.

A handwritten signature in dark ink, appearing to read "Peter Robles, Jr.", with a stylized flourish at the end.

Peter Robles, Jr.
EHS&F Manager
NASA Management Office (NMO)
Jet Propulsion Laboratory (JPL)

October 2005

ACI: Administratively Controlled Information



Desert Tortoise Survey at Apollo Site

Neil Lynn, ITS Corporation, National Training Center (NTC) & Fort Irwin, CA
Mark Hessing, ITS Corporation, NTC & Fort Irwin, CA
Brian Shomo, ITS Corporation, NTC & Fort Irwin, CA
Taura Huxley, ITS Corporation, NTC & Fort Irwin, CA

Abstract: On 25 May 2005, biologists from Fort Irwin's Directorate of Public Works surveyed for desert tortoises (*Gopherus agassizii*) within a 500 meter x 500 meter site for the placement of a small antenna array at near the Apollo site in Goldstone. The survey was conducted according to United States Fish and Wildlife Service (USFWS) protocol. There were no desert tortoises or desert tortoise sign found within the surveyed area. We found no biological reason to prevent the construction of the antenna array.

A survey for desert tortoises (*Gopherus agassizii*) was performed at a 500 meter x 500 meter area of desert in the Goldstone portion of the National Training Center (NTC). The purpose of the survey was to collect information on the presence of desert tortoises within the boundary of the proposed FOB sites and to note any other sensitive plant or animal species.

SURVEY AREA

The surveyed areas are located approximately 19 km east northwest of the cantonment area of the NTC & Fort Irwin, and about 35 km northeast of the city of Barstow in San Bernardino County, California (Figure 1). This area consists of approximately 26 hectares of undeveloped desert. No roads cross the project area.

The site is located in a hilly area with slope ranging from 0 to 10%. Due to the hilly nature of this site, aspects are varying, however, from the southwest corner to the northeast corner, the aspect is mostly to the south. Elevations range from approximately 949 to 981 meters. Soil textures are very rocky with areas of sand. Previous impacts in this area are low. No existing roads transect the area.

The plant community is creosote bush scrub. Dominant perennial plants include creosote bush (*Larrea tridentata*), bursage (*Ambrosia dumosa*), cheesebush (*Hymenoclea salsola*), and boxthorn (*Lycium cooperi*). Overall plant diversity is low.

METHODS

The methodology for the survey was based on the U.S. Fish and Wildlife Service (USFWS) field survey protocol for the desert tortoise

(USFWS 1992). The entire project area was surveyed using parallel belt transects 10 meters wide and all desert tortoise sign was recorded and mapped. Belt transects less than 10 meters wide were walked in locations where vegetation or topography obscured or reduced the surveyor's ability to see tortoise sign.

All tortoise sign (i.e., live tortoises, carcasses, burrows, and scat) were recorded with a Garmin 12 GPS unit and assigned a USFWS category rating (USFWS 1992). Active burrows were investigated with a hand-held mirror to determine the presence of tortoises. For active burrows whose end could not be seen, the burrow entrance was lightly tapped and the burrow probed with a stick in order to provoke any potential occupant into visibility.

Midline carapace length (MCL) was measured and sex determined for all live desert tortoises that were found above ground. When possible, tortoises were evaluated for signs of the Upper Respiratory Tract Disease. In addition, the positions and behaviors of tortoises were recorded. Position categories were as follows: In Burrow, Near Burrow, Under Shrub, or In Open. Behavior categories were Resting (with plastron on ground), Walking, Basking, Feeding, Mating, and Combat.

Burrows were assigned categories according to USFWS protocol. Category 1 burrows were currently active, with tortoise or recent sign. Category 2 burrows were in good condition, definitely tortoise; however, there was no sign of recent use. Category 3 burrows were in deteriorated condition, but were definitely tortoise. Category 4 burrows were in deteriorated condition and were possibly tortoise.

Category 5 burrows were in good condition, but were only possibly tortoise.

Carcasses were likewise given the following USFWS categories based on relative age of the carcass: Category 1 carcasses were fresh or putrid. Category 2 carcasses were of normal color with scutes adhering to bone. Category 3 carcasses had scutes that were peeling off of bone. Category 4 carcasses had the shell bone falling apart and growth rings on scutes that were peeling. Category 5 carcasses were disarticulated and scattered.

Scats were assigned one of five USFWS categories based on age. Category 1 were the most recent (i.e., scats that were freshly dried with an obvious odor); Category 5, the oldest.

Survey hours were restricted to the morning to correspond with peak tortoise activity.

RESULTS

The survey was performed by USFWS authorized desert tortoise biologists from Fort Irwin's Directorate of Public Works—Environmental Division. The areas were surveyed on 25 May 2005. Survey weather conditions consisted of clear skies, light winds, and temperatures ranging from 29 to 35 degrees Celsius.

No desert tortoises, burrows, scat, or other tortoise sign were observed within the project area. Several other species of animal were present during the survey period (Table 1).

Table 1. Wildlife Observed During the Apollo Site Survey.

Scientific Name	Common Name
Mammals	
<i>Dipodomys spp</i>	Rodent burrows
<i>Equus asinus</i>	Burro scat
<i>Canis latrans</i>	Coyote scat
<i>Neotoma lepida</i>	Wood rat
<i>Ammospermophilus leucurus</i>	Antelope ground squirrel
<i>Lepus californicus</i>	Blacktail jackrabbit
Birds	
<i>Lanius ludovicianus</i>	Loggerhead shrike
<i>Zenaida macroura</i>	Mourning dove
<i>Corvus corax</i>	Common raven
Reptiles	
<i>Uta stansburiana</i>	Side-blotched lizard
<i>Phrynosoma platyrhinos</i>	Horned lizard

<i>Masticophis flagellum</i>	Coachwhip
<i>Cnemidophorus tigris</i>	Western whiptail
<i>Callisaurus draconoides</i>	Zebratail Lizard

A total of 51 plant species were observed during the Apollo Site survey (Table 2). This area contains a relatively high diversity of plants with the most common perennial shrubs being creosote (*Larrea tridentata*) and bursage (*Ambrosia dumosa*). Neither the Federally endangered Lane Mountain Milkvetch (*Astragalus jaegerianus*) nor the alkali mariposa lily (*Calochortus striatus*), the only two sensitive plant species known to occur on the NTC & Fort Irwin, were observed during either survey, though the site is within 15 kilometers of known population of LMMV. Similarly, the site is with 15 km from known populations of desert cymopterus (*Cymopterus deserticola*), a state listed plant.

Table 2. Plant Species Observed During the Apollo Site Survey

Scientific Name	Common Name
<i>Ambrosia dumosa</i>	burrobush
<i>Porophyllum gracile</i>	Odora
<i>Malacothrix glabrata</i>	Desert dandelion
<i>Amsinckia tessellata</i>	Fiddleneck
<i>Astragalus</i>	Milkvetch
<i>Astragalus layneae</i>	Layne's milkvetch
<i>Atriplex canescens</i>	Four-wing saltbush
<i>Atriplex confertifolia</i>	Shadscale
<i>Brassica tournifortii</i>	Sahara mustard
<i>Bromus madritensis</i>	Red brome
<i>Camissonia brevipes</i>	Suncup
<i>Camissonia sp.</i>	Suncup
<i>Chaenactis stevioides</i>	Pincushion
<i>Chrysothamnus</i>	Round-leaf
<i>Streptanthella</i>	
<i>Echinocactus</i>	Cottontop cactus
<i>Encelia farinose</i>	Brittlebush
<i>Ephedra nevadensis</i>	Nevada ephedra
<i>Eriastrum diffusum (?)</i>	Prickly phlox
<i>Ericameria cooperi</i>	Cooper's goldenbush
<i>Eriogonum</i>	California buckwheat
<i>Eriogonum inflatum</i>	Buckwheat
<i>Eriogonum sp.</i>	Buckwheat
<i>Erodium cicutarium</i>	Filaree
<i>Grayia spinosa</i>	Spiny hopsage
<i>Hymenoclea salsola</i>	Cheesebush
<i>Krameria erecta</i>	Rhatany
<i>Krashennikovia</i>	Winter fat

<i>Larrea tridentata</i>	creosotebush
<i>Lepidium montanum</i>	Peppergrass
<i>Lepidium sp.</i>	Peppergrass
<i>Loesseliastrum schottii</i>	
<i>Lotus humistratus</i>	Deer vetch
<i>Lupinus sp.</i>	Bluebonnet
<i>Lycium andersonii</i>	Andersons's
<i>Malacothrix coulteri</i>	Snake's head
<i>Mentzelia albicaulis</i>	Blazing star
<i>Mirabilis bigelovii</i>	Wishbone plant
<i>Monoptilon</i>	Desert star
<i>Opuntia acanthocarpa</i>	Silver cholla
<i>Opuntia bassilaris</i>	Beavertail cholla
<i>Phacelia sp.</i>	Phacelia
<i>Rafinesquia</i>	Desert chicory
<i>Salazaria mexicana</i>	Paperbag bush
<i>Schismus barbatus</i>	Mediterranean grass
<i>Sphaeralcea ambigua</i>	Globemallow
<i>Stephanomeria exigua</i>	
<i>Stephanomeria</i>	Wirelettuce
<i>Tetradymia stenolepis</i>	Horsebrush
<i>Thamnosma Montana</i>	Turpentine bush
<i>Yucca brevifolia</i>	Joshua tree

USFWS, 1994. *Desert Tortoise (Mojave Population) Recovery Plan*. U.S. Fish and Wildlife Service, Region 1, Portland, Oregon. 73 pp. + appendices.

USFWS, 1998. *A Comparison of Desert Tortoise Survey Techniques*. Prepared for the United States Air Force, Edwards Air Force Base, AFMTC/EM.

DISCUSSION

With its relatively high diversity of perennial shrubs and low amounts of impacts, this project area is suitable for desert tortoises. While no desert tortoises have been located within the surveyed area, several tortoises have been found in the past within 1 kilometer. Overall, the chances of seeing a desert tortoise in this area are good. We recommend that all construction personnel working at this site be given a desert tortoise brief to educate them on desert tortoise protocols and natural history.

REFERENCES CITED

Berry, K.H. and M.M. Christopher, 2001. *Guidelines for the field evaluation of desert tortoise health and disease*. Journal of Wildlife Diseases, 37(3): 427-450.

USFWS, 1992. *Field Survey Protocol for any Federal and Non-federal Action That May Occur Within the Range of the Desert Tortoise*.

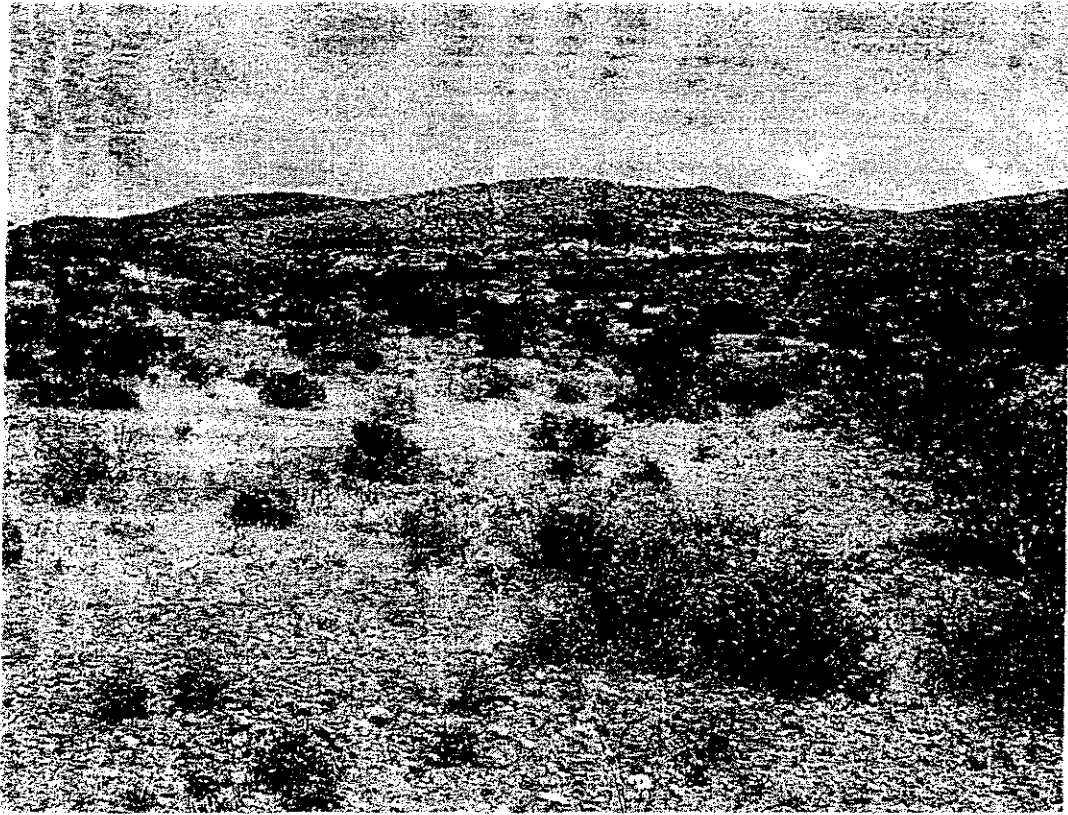


Fig. 1 Apollo Site



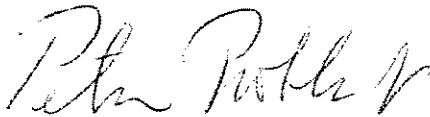
Figure 2. Location of Project Area

The Ft. Irwin biologist's survey concludes that there is no tortoise activity at the subject site. NASA believes that, given the very similar conditions, the site for the access road also has little possibility for tortoise activity. The survey also notes that the area may have a good chance for sighting a tortoise and is suitable for desert tortoise. However, as noted in the abstract of the survey, Ft. Irwin biologists could find no biological reason to prevent the proposed project's construction. Despite this finding, NASA plans to implement the biologist's suggestion of briefing construction and operations personnel on desert tortoise protocols and natural history as an extra precaution.

Based on the Ft. Irwin biologist's survey, and our own evaluation, NASA/JPL has concluded that the proposed project and operations at the APOLLO Site may affect, but is not likely to adversely affect, the desert tortoise. NASA/JPL is seeking your concurrence of this conclusion.

If you have any questions or need additional information, please contact Peter Robles, NASA Environmental, Safety, Health, and Facility Manager, at 818-393-2920, or Mr. Charles, Manager of JPL's Environmental Affairs Program Office at 818-354-0180.

Thank you for your time and consideration of this request.

A handwritten signature in black ink, appearing to read "Peter Robles, Jr.", with a stylized flourish at the end.

Peter Robles, Jr.
EHS&F Manager
NASA Management Office (NMO)
Jet Propulsion Laboratory (JPL)

Discussion on 12-7-2005 re: Prototype of Antenna Array – Demo. Project

The proposal is to erect two to four uplink and up to four to six downlink antennas, from 1 meter to 12 meters in size, on an area of approximately 5 acres near the Apollo site at the Goldstone facility. This demonstration project is intended to test the potential for tracking spacecraft with a series of small antennas rather than the large antennas currently used. This activity is currently funded. The potential exists for placing up to 20 additional antennas, ranging in size from 1 meter to 18 meters, on an area of approximately 20 acres adjacent to the 5-acre site. This effort has not been approved or funded and, at this time, is not reasonably expected to take place.

Chuck Buril discussed the project with Peter Robles. Peter has decided that it is best to proceed with a Categorical Exclusion for the 5-acre site. As the further development on an additional 20 acres is not funded, approved or reasonably expected to take place, handling the 5-acre site as a Categorical Exemption is not viewed as project fragmentation. Chuck was directed to proceed with talks with the Fish and Wildlife Service to clear any environmental concerns for the entire 25-acre site. Based on discussions to date, the Fish and Wildlife Service does not see any environmental issues that would prevent approval of the site plan. A formal letter to Fish and Wildlife will be prepared for signature and transmittal by Peter Robles.

total 25 acres

Reviewed and approved by:

Peter Robles, Jr.
Environmental, Safety, Health & Facility (ESH&F) Manager

Peter Robles Jr

12 Dec 05

ARTICLE
7106 4575 1292 6336 0405
NUMBER

LINE 1

U.S. Fish and Wildlife Services
2493 Portola Road, Suite B
Ventura, CA 93003

Attn: Ms. Judy Rohman



WALZ
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MAILER
FROM
MOORE
1-800-882-3811
FORM #35662

REFERENCE:

7106 4575 1292 6336 0405

U.S. Postal Service Receipt for Certified Mail <small>No Insurance Coverage Provided For Value of Contents</small>	Postage	\$ 1.52
	Certified Fee	2.30
	Return Receipt Fee (Endorsement Required)	1.75
	Restricted Delivery Fee (Endorsement Required)	
	Total Postage & Fees	\$ 5.57
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PS Form 3800, June 2000 US Postal Service Certified Mail Receipt		

